

Amendments to the Claims

Please amend Claims 1-40 as follows. A complete listing of the claims is presented below.

1. (Currently Amended) A method for forming an index, ~~said~~the index including a subset of instruments selected from a universe of N instruments, ~~said~~the method comprising the steps of:
 - a) assigning a covariance matrix composed of a variance for each of ~~said~~the instruments and a correlation matrix to ~~said~~the universe;
 - b) removing one of ~~said~~the instruments from ~~said~~the universe;
 - c) calculating a residual variance for each of ~~said~~the instruments remaining in ~~said~~the universe;
 - d) calculating a residual variance for ~~said~~the-universe based on ~~said~~the-residual variance for each of ~~said~~the-instruments and ~~said~~the correlation matrix;
 - e) reinstating ~~said~~the-instrument into ~~said~~the universe;
 - f) repeating steps b-e for each instrument in the universe;
 - g) inserting into ~~said~~the-index ~~said~~the-one of ~~said~~the instruments for which ~~said~~the residual variance of ~~said~~theuniverse is minimized;
 - h) eliminating from ~~said~~theuniverse ~~said~~the-one of ~~said~~theinstruments for which ~~said~~the the residual variance of ~~said~~theuniverse is minimized; and
 - i) repeating steps b-h until ~~said~~the index is formed.

2. (Currently Amended) The method of claim 1, wherein the step of assigning a covariance matrix includes the steps of:

calculating a variance for each of ~~said the~~ instruments in ~~said the~~ universe; and

assigning a correlation value between a plurality of pairs of ~~said the~~ instruments in ~~said the~~ universe.

3. (Currently Amended) The method of claim 2, wherein some of ~~said the~~ instruments in ~~said the~~ universe are associated with an entity and wherein the step of assigning a correlation value further comprises the step of:

assigning a correlation value between each of ~~said the~~ some of ~~said the~~ instruments associated with ~~said the~~ entity.

4. (Currently Amended) The method of claim 3, wherein ~~said the~~ correlation value between each of ~~said the~~ some of ~~said the~~ instruments associated with ~~said the~~ entity is identical.

5. (Currently Amended) The method of claim 2, wherein some of ~~said the~~ instruments in ~~said the~~ universe are within a sector in a country and wherein the step of assigning a correlation value further comprises the step of:

assigning a correlation value between each of ~~said the~~ some of ~~said the~~ instruments within ~~said the~~ sector in ~~said the~~ country.

6. (Currently Amended) The method of claim 5, wherein ~~said the~~ correlation value between each of ~~said the~~ some of ~~said the~~ instruments within ~~said the~~ sector in ~~said the~~ country is identical.

7. (Currently Amended) The method of claim 2, wherein some of ~~said~~the instruments in ~~said~~the universe are within a first sector and some of ~~said~~the instruments in ~~said~~the universe are within a second sector and wherein the step of assigning a correlation value further comprises the step of:

assigning a correlation value between each of ~~said~~the some of ~~said~~the instruments within ~~said~~the first sector and each of ~~said~~the some of ~~said~~the instruments within ~~said~~the second sector.

8. (Currently Amended) The method of claim 7, wherein ~~said~~the correlation value between each of ~~said~~the some of ~~said~~the instruments within ~~said~~the first sector and each of ~~said~~the some of ~~said~~the instruments within ~~said~~the second sector is identical.

9. (Currently Amended) The method of claim 2, wherein some of ~~said~~the instruments in ~~said~~the universe are associated with a first country and some of ~~said~~the instruments in ~~said~~the universe are associated with a second country and wherein the step of assigning a correlation value further comprises the step of:

assigning a correlation value between each of ~~said~~the some of ~~said~~the instruments associated with ~~said~~the first country and each of ~~said~~the some of ~~said~~the instruments associated with ~~said~~the second country.

10. (Currently Amended) The method of claim 9, wherein ~~said~~the correlation value between each of ~~said~~the some of ~~said~~the instruments associated with ~~said~~the first country and each of ~~said~~the some of ~~said~~the instruments associated with ~~said~~the second country is identical.

11. (Currently Amended) The method of claim 2, wherein some of ~~said~~the instruments in ~~said~~the universe are associated with an entity, some of ~~said~~the instruments in ~~said~~the universe are within a first sector in a first country, some of ~~said~~the instruments in ~~said~~the universe are within a second sector in a second country, some of ~~said~~the instruments in ~~said~~the universe are associated with a first country and some of ~~said~~the instruments in ~~said~~the universe are associated with a second country and wherein the step of assigning a correlation value further comprises the steps of:

assigning a correlation value between each of ~~said~~the some of ~~said~~the instruments associated with ~~said~~the entity;

assigning a correlation value between each of ~~said~~the some of ~~said~~the instruments within ~~said~~the first sector in ~~said~~the first country;

assigning a correlation value between each of ~~said~~the some of ~~said~~the instruments within ~~said~~the first sector and each of ~~said~~the some of ~~said~~the instruments within ~~said~~the second sector; and

assigning a correlation value between each of ~~said~~the some of ~~said~~the instruments associated with ~~said~~the first country and each of ~~said~~the some of ~~said~~the instruments associated with ~~said~~the second country.

12. (Currently Amended) The method of claim 11, wherein ~~said~~the correlation value between each of ~~said~~the some of ~~said~~the instruments associated with ~~said~~the entity is identical, ~~said~~the correlation value between each of ~~said~~the some of ~~said~~the instruments within ~~said~~the first sector

is identical, ~~said~~the correlation value between each of ~~said~~the some of ~~said~~the instruments within ~~said~~the first sector and each of ~~said~~the some of ~~said~~the instruments within ~~said~~the second sector is identical and ~~said~~the correlation value between each of ~~said~~the some of ~~said~~the instruments associated with ~~said~~the first country and each of ~~said~~the some of ~~said~~the instruments associated with ~~said~~the second country is identical.

13. (Currently Amended) The method of claim 1, wherein the step of calculating a residual variance of the instruments remaining in ~~said~~the universe includes the step of:

$$\text{calculating } RESVAR^m(R) = \sum_{i \notin K} (\sigma_i^m)^2 + \sum_{i \notin K} \sum_{j \neq i, j \notin K} \sigma_i^m \sigma_j^m \rho_{i,j}$$

where

$$\sigma_i^m = \sigma_i^0 \sqrt{(1 - \rho_{i,k_1}^2)(1 - \rho_{i,k_2}^2) \dots (1 - \rho_{i,k_m}^2)}, i \notin K = \{k_1, k_2, \dots, k_m\} [.] \text{ and}$$

where $(\sigma_i^m)^2$ is the residual variance of the i th instrument after m instruments have been removed from the original universe;

where $\sigma_i^0 = w_i d_i \sigma_{Y,i}$ as the standard deviation of the i th instrument's total return;
and

where w^T is a vector of instrument weights;

14. (Currently Amended) The method of claim 1, wherein ~~said~~the index is formed when a predetermined number of instruments in the universe are inserted into ~~said~~the index.

15. (Currently Amended) The method of claim 1, wherein ~~said~~the index is formed when a predetermined percentage of ~~said~~the instruments in the universe are inserted into ~~said~~the index.

16. (Currently Amended) The method of claim 15, wherein ~~said~~the predetermined percentage is a percentage of ~~said~~the universe of N instruments on a weighted basis.

17. (Currently Amended) The method of claim 1, further comprising the step of:

calculating an original dv01 of ~~said~~the universe before the removing one of ~~said~~the instruments step;

wherein the step of inserting into ~~said~~the index ~~said~~the one of ~~said~~the instruments for which ~~said~~the residual variance is minimized includes the step of:

calculating a remaining dv01 of ~~said~~the universe; and

wherein ~~said~~the index is formed when ~~said~~the remaining dv01 of ~~said~~the universe is a predetermined percentage of ~~said~~the original dv01 of ~~said~~the universe.

18. (Currently Amended) The method of claim 1, wherein ~~said~~the instruments are fixed income instruments.

19. (Currently Amended) The method of claim 1, wherein ~~said~~the instruments are equities.

20. (Currently Amended) The method of claim 1, wherein ~~said~~the instruments are FX securities.

21. (Currently Amended) Computer executable program code residing on a computer-readable medium, the program code comprising instructions for causing the computer to:

form an index, ~~said~~the index including a subset of instruments selected from a universe of N instruments:

a) assign a covariance matrix composed of a variance for each of said instruments and a correlation matrix to said universe;

b) remove one of said instruments from said universe;

c) calculate a residual variance for each of said instruments remaining in said universe;

d) calculate a residual variance for said universe based on said residual variance for each of said instruments and said correlation matrix;

e) reinstate said instrument into said universe;

f) repeat steps b-e for each instrument in the universe;

g) insert into said index said one of said instruments for which said residual variance of said universe is minimized;

h) eliminate from said universe said one of said instruments for which said residual variance of said universe is minimized; and

i) Repeat steps b-h until said index is formed.

22. (Currently Amended) The computer executable program of claim 21, wherein the program code additionally causes the computer to:

calculate a variance for each of said instruments in said universe; and

assign a correlation value between a plurality of pairs of said instruments in said universe.

23. (Currently Amended) The computer executable program of claim 22, wherein some of ~~said~~the instruments in ~~said~~the universe are associated with an entity and wherein the program code additionally causes the computer to:

assign a correlation value between each of ~~said~~the some of ~~said~~the instruments associated with ~~said~~the entity.

24. (Currently Amended) The computer executable program of claim 23, wherein ~~said~~the correlation value between each of ~~said~~the some of ~~said~~the instruments associated with ~~said~~the entity is identical.

25. (Currently Amended) The computer executable program of claim 22, wherein some of ~~said~~the instruments in ~~said~~the universe are within a sector in a country and wherein the program code additionally causes the computer to:

assign a correlation value between each of ~~said~~the some of ~~said~~the instruments within ~~said~~the sector in ~~said~~the country.

26. (Currently Amended) The computer executable program of claim 25, wherein ~~said~~the correlation value between each of ~~said~~the some of ~~said~~the instruments within ~~said~~the sector in ~~said~~the country is identical.

27. (Currently Amended) The computer executable program of claim 22, wherein some of ~~said~~the instruments in ~~said~~the universe are within a first sector and some of ~~said~~the instruments in ~~said~~the universe are within a second sector and wherein the program code additionally causes the computer to:

assign a correlation value between each of ~~said~~the some of ~~said~~the instruments within ~~said~~the first sector and each of ~~said~~the some of ~~said~~the instruments within ~~said~~the second sector.

28. (Currently Amended) The computer executable program of claim 27, wherein ~~said~~the correlation value between each of ~~said~~the some of ~~said~~the instruments within ~~said~~the first sector and each of ~~said~~the some of ~~said~~the instruments within ~~said~~the second sector is identical.

29. (Currently Amended) The computer executable program of claim 22, wherein some of ~~said~~the instruments in ~~said~~the universe are associated with a first country and some of ~~said~~the instruments in ~~said~~the universe are associated with a second country and wherein the program code additionally causes the computer to:

assign a correlation value between each of ~~said~~the some of ~~said~~the instruments associated with ~~said~~the first country and each of ~~said~~the some of ~~said~~the instruments associated with ~~said~~the second country.

30. (Currently Amended) The computer executable program of claim 29, wherein ~~said~~the correlation value between each of ~~said~~the some of ~~said~~the instruments associated with ~~said~~the first country and each of ~~said~~the some of ~~said~~the instruments associated with ~~said~~the second country is identical.

31. (Currently Amended) The computer executable program of claim 22, wherein some of ~~said~~the instruments in ~~said~~the universe are associated with an entity, some of ~~said~~the instruments in ~~said~~the universe are within a first sector in a first country, some of ~~said~~the instruments in ~~said~~the universe are within a second sector in a second country, some of ~~said~~the instruments in

~~said~~the universe are associated with a first country and some of ~~said~~the instruments in ~~said~~the universe are associated with a second country and wherein the program code additionally causes the computer to:

assign a correlation value between each of ~~said~~the some of ~~said~~the instruments associated with ~~said~~the entity;

assign a correlation value between each of ~~said~~the some of ~~said~~the instruments within ~~said~~the first sector in ~~said~~the first country;

assign a correlation value between each of ~~said~~the some of ~~said~~the instruments within ~~said~~the first sector and each of ~~said~~the some of ~~said~~the instruments within ~~said~~the second sector; and

assign a correlation value between each of ~~said~~the some of ~~said~~the instruments associated with ~~said~~the first country and each of ~~said~~the some of ~~said~~the instruments associated with ~~said~~the second country.

32. (Currently Amended) The computer executable program of claim 31, wherein ~~said~~the correlation value between each of ~~said~~the some of ~~said~~the instruments associated with ~~said~~the entity is identical, ~~said~~the correlation value between each of ~~said~~the some of ~~said~~the instruments within ~~said~~the first sector is identical, ~~said~~the correlation value between each of ~~said~~the some of ~~said~~the instruments within ~~said~~the first sector and each of ~~said~~the some of ~~said~~the instruments within ~~said~~the second sector is identical and ~~said~~the correlation value between each of ~~said~~the

some of ~~said~~the instruments associated with ~~said~~the first country and each of ~~said~~the some of ~~said~~the instruments associated with ~~said~~the second country is identical.

33. (Currently Amended) The computer executable program of claim 21, wherein the program code additionally causes the computer to:

$$\text{calculate } RESVAR^m(R) = \sum_{i \notin K} (\sigma_i^m)^2 + \sum_{i \notin K} \sum_{j \neq i, j \notin K} \sigma_i^m \sigma_j^m \rho_{i,j}$$

where

$$\sigma_i^m = \sigma_i^0 \sqrt{(1 - \rho_{i,k_1}^2)(1 - \rho_{i,k_2}^2) \dots (1 - \rho_{i,k_m}^2)}, \quad i \notin K = \{k_1, k_2, \dots, k_m\}.$$

34. (Currently Amended) The computer executable program of claim 21, wherein ~~said~~the index is formed when a predetermined number of instruments in the universe are inserted into ~~said~~the index.

35. (Currently Amended) The computer executable program of claim 21, wherein ~~said~~the index is formed when a predetermined percentage of ~~said~~the instruments in the universe are inserted into ~~said~~the index.

36. (Currently Amended) The computer executable program of claim 35, wherein ~~said~~the predetermined percentage is a percentage of ~~said~~the universe of N instruments on a weighted basis.

37. (Currently Amended) The computer executable program of claim 21, wherein the program code additionally causes the computer to:

calculate an original dv01 of ~~said~~the universe before one of ~~said~~the instruments is removed from ~~said~~the universe ;

calculate a remaining dv01 of ~~said~~the universe after one of ~~said~~the instruments is inserted into ~~said~~the index; and

wherein ~~said~~the index is formed when ~~said~~the remaining dv01 of ~~said~~the universe is a predetermined percentage of ~~said~~the original dv01 of ~~said~~the universe.

38. (Currently Amended) The computer executable program of claim 21, wherein ~~said~~the instruments are fixed income instruments.

39. (Currently Amended) The computer executable program of claim 21, wherein ~~said~~the instruments are equities.

40. (Currently Amended) The computer executable program of claim 21, wherein ~~said~~the instruments are FX securities.